

**Terminal structure having improved  
electroplate**

**FIELD OF THE INVENTION**

The present invention relates to a terminal structure having improved electroplate. More particularly, when being electroplated in an electroplating solution, by convection of the electroplating solution between an opening and a bore in the hollow-tube body, inner and outer parts of the hollow-tube body are electroplated thoroughly.

## BACKGROUND OF THE INVENTION

The conventional terminal structure is generally formed with a bushing and a contacting portion.

Also, a spring is disposed between the bushing and the contacting portion. A closed side and an opening are respectively disposed in two ends of the bushing.

By the closed side mounting in a circuit board, the terminal structure is capable of contacting an electrode of an external battery.

Although the above-mentioned terminal structure can be mounted in the circuit board for contacting the electrode of the external battery, however, the

terminal structure must be electroplated before being fabricated. In the electroplating process, devices need to be electroplated in a container full of electroplating solution. Since the opening is in one end of the bushing and the closed side is in another end of the bushing, during the electroplating process, inner and outer pressures will be different, causing the electroplating solution not able to completely enter the bushing. Therefore, the inner part of the bushing can not be electroplated thoroughly. That is, some inner parts of the bushing may be electroplated but other parts may not. In using, the electronic

efficiency will become worse due to incomplete electroplating of the terminal. Therefore, the conventional terminal structure mentioned above can not meet realistic needs.

#### SUMMARY OF THE INVENTION

The main objective of the present invention is that when being electroplated in an electroplating solution, by convection of the electroplating solution via an opening and a bore in the hollow-tube body, inner and outer parts of the hollow-tube body are electroplated thoroughly.

To achieve the above objective, the terminal of the present invention is configured to a circuit board for contacting an electrode of an external battery, which comprises:

a hollow-tube body having a base disposed in an end, wherein an opening with a gradually narrow figure is formed in an end of the hollow-tube body;

a contacting portion disposed within the mentioned hollow-tube body, wherein a stopper is circularly disposed in an end of the contacting portion, the stopper causes obstruction in the opening of the hollow-tube body, a recession is disposed in an

end of the stopper;

an elastic member disposed between the

hollow-tube body and the contacting portion, wherein

an end of the elastic member withstands the base in

the end of the hollow-tube body and another end of

the elastic member withstands the recession of the

stopper;

which is characterized in that:

a bore is disposed in circumference of the

hollow-tube body and is close to the base, the bore

passes through the hollow-tube body; whereby when

being electroplated in an electroplating solution, by

convection of the electroplating solution via an opening and a bore in the hollow-tube body, inner and outer parts of the hollow-tube body are electroplated thoroughly.

#### BRIEF DESCRIPTION OF THE DRAWINGS

The present invention will be better understood from the following detailed description of preferred embodiments of the invention, taken in conjunction with the accompanying drawing, in which:

FIG.1 is a view showing the outward appearance of the present invention;

FIG.2 is a view showing a separation view of the present invention;

FIG.3 is a view showing a cross-section view of the present invention; and

FIG.4 is a cross-section view in an electroplating configuration of the present invention.

#### DETAIL DESCRIPTION OF THE INVENTION

The following descriptions of the preferred embodiments are provided to understand the features and the structures of the present

invention.

FIG.1, FIG.2 and FIG.3 are respectively a

view showing the outward appearance of the

present invention, a separation view of the

present invention, and a cross-section view

of the present invention. As shown in the

drawings, the present invention is a terminal

structure having improved electroplate. The

terminal is configured to a circuit board for

contacting an electrode of an external battery

(not shown), which comprises:

a hollow-tube body 1 having a base 11

disposed in an end, wherein an opening 12

with a gradually narrow figure is formed in

an end of the hollow-tube body 1. Moreover,

a bore 13 is disposed in circumference of the

hollow-tube body 1 and is close to the base

11. The bore 13 passes through the

hollow-tube body 1;

a contacting portion 2 disposed within

the mentioned hollow-tube body 1, wherein a

stopper 21 is circularly disposed in an end of

the contacting portion 2 and the end of the

contacting portion 2 is partially exposed out

from the opening 12 of the hollow-tube body

1. The stopper 21 causes obstruction in the

opening 12 of the hollow-tube body 1 with a

gradually narrow figure, and thus a recession

22 is disposed in an end of the stopper 21;

an elastic member 3 disposed between

the hollow-tube body 1 and the contacting

portion 2, wherein an end of the elastic

member 3 withstands the base 11 in the end

of the hollow-tube body 1 and another end of

the elastic member 3 withstands the recession

22 of the stopper 21. By the elastic member

3, the contacting portion 2 can expand and contract in an end of the hollow-tube body 1; therefore, a novel terminal structure is provided. By it, when being electroplated in an electroplating solution, by convection of the electroplating solution between the opening 12 and the bore 13 in the hollow-tube body 1, inner and outer parts of the hollow-tube body 1 are electroplated thoroughly.

FIG.4 is a cross-section view in an electroplating configuration of the present

invention. As shown in the drawing, before being fabricated, the terminal structure of the present invention has to electroplate each device respectively. While electroplating, the hollow-tube body 1 is placed in an electroplating container 4 with the electroplating solution 41. For the time being, since the bore 13 passes through the hollow-tube body 1, the opening 12 and the bore 13 in the end of the hollow-tube body 1 are combined, and the inner and outer pressure of the hollow-tube body 1 are

identical (equal to the pressure in the electroplating container). Thus, when electroplating the hollow-tube body 1 in the electroplating solution, by convection of the electroplating solution 41 between the opening 12 and the bore 13 in the hollow-tube body 1, inner and outer parts of the hollow-tube body 1 are electroplated thoroughly.

In summation of the foregoing section, the invention herein fully complies with all new patent application requirement and is hereby

submitted to the patent bureau for review and  
the granting of the commensurate patent  
rights.

The present invention may be embodied in  
other specific forms without departing from  
the spirit of the essential attributes thereof;  
therefore, the illustrated embodiment should  
be considered in all respects as illustrative  
and not restrictive, reference being made to  
the appended claims rather than to the  
foregoing description to indicate the scope  
of the invention.